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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,459	08/31/2000	David Hartwell	15311-2289	3596

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EXAMINER

ODOM, CURTIS B

ART UNIT	PAPER NUMBER
2634	4

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/652,459

Applicant(s)

HARTWELL ET AL.

Examiner

Curtis B. Odom

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig. 1, elements 20c, 22c, 34, 38, and 44. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
3. The disclosure is objected to because of the following informalities:
- a. On page 4, line 13, "unit.." is suggested to be changed to "unit."
 - b. On page 5, line 20, the word "transistors" is suggested to be changed to "transitions".
 - c. On page 6, line 6, the phrase "later 24" is suggested to be changed to "latch 24".
- Appropriate correction is required.

Claim Objections

4. Claims 1-4 are objected to because of the following informalities:
- a. In claim 1, line 4, the word "receiving" is suggested to be changed to "receive".
 - b. In claim 2, line 5, the phrase "said latch" is suggested to be changed to "the latches".
 - c. In claim 2, line 10, the phrase "the third and fourth" is suggested to be changed to "third and fourth".
 - d. In claim 4, lines 1 and 2, the phrase "said synchronism maintaining means" is suggested to be changed to "the synchronism maintaining means".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dreps et al. (U.S. Patent No. 6, 334, 163).

Regarding claim 1, Dreps et al. discloses a data receiving unit (Fig. 6A) for receiving data transmissions in which data is transmitted in parallel over a plurality of conductors (Fig. 3, elements 126, 306, 322 and a forwarded clock signal (Fig. 6A, element 336, column 7, lines 38-48, wherein the I/O clock signal is the delayed forwarded clock signal (Fig. 3, elements 314 and 336)), synchronized with the data, is receiver over a further conductor (Fig. 3, elements 306 and 322), the unit comprising:

an input latch (Fig. 6A, blocks 408 and 422, column 6, line 40-column 7, line 12) connected to receive the data on the data conductors, the latch being clocked by alternate transitions of the forwarded clock signal;

means (Fig. 3, Target Cycle Unit, column 8, lines 8-25) for maintaining a replica of the forwarded clock signal in synchronism with the forwarded clock signal, the replica being a local clock signal (Fig. 3, element 316) for internal operations of the receiving unit, wherein the Target Cycle Unit maintains a synchronism between the local clock signal produced by the PLL (Fig. 3, block 312) and the forwarded clock signal (Fig. 3, elements 314 and 336);

a second latch (Fig. 6A, blocks 630 and 628, column 10, lines 2-28) connected to receive the contents of the input latch, the second latch being clocked by the local clock signal on transitions alternate to those on which said input latch is clocked, wherein the latch can be clocked on the falling edge (negative transition) of the signal, which is alternate to the input latch.

However, Dreps et al. does not disclose the replica of the forwarded clock signal is delayed. The replica of the forwarded clock signal is a local clock signal. It is conventional in the art to delay a local clock signal in a reception apparatus. Therefore, it would have been

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obvious to one skilled in the art at the time the invention was made that delaying the local clock signal can help maintain system synchronization and reduce jitter which allows optimal processing of a received data signal.

Regarding claim 2, Dreps et al. discloses a data receiving unit (Fig. 6A) for receiving double-data-rate transmissions in which data is transmitted in parallel over a plurality of conductors (Fig. 3, elements 126, 306, 322 and a forwarded clock signal (Fig. 6A, element 336, column 7, lines 38-48, wherein the I/O clock signal is the delayed forwarded clock signal (Fig. 3, elements 314 and 336)), synchronized with the data, is receiver over a further conductor (Fig. 3, elements 306 and 322), the unit comprising:

first and second input latches (Fig. 6A, blocks 408 and 422, column 6, line 40-column 7, line 12) connected to receive the data on the data conductors, the latches being clocked by alternate transitions of the forwarded clock signal;

means (Fig. 3, Target Cycle Unit, column 8, lines 8-25) for maintaining a replica of the forwarded clock signal in synchronism with the forwarded clock signal, the replica being a local clock signal (Fig. 3, element 316) for internal operations of the receiving unit, wherein the Target Cycle Unit maintains a synchronism between the local clock signal produced by the PLL (Fig. 3, block 312) and the forwarded clock signal (Fig. 3, elements 314 and 336);

third and fourth latches (Fig. 6A, blocks 630 and 628, column 10, lines 2-28) connected to receive the contents of the first and second input latches, the third and fourth latches being clocked on the same transitions of the local clock signal.

However, Dreps et al. does not disclose the replica of the forwarded clock signal is delayed. The replica of the forwarded clock signal is a local clock signal. It is conventional in

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the art to delay a local clock signal in a reception apparatus. Therefore, it would have been obvious to one skilled in the art at the time the invention was made that delaying the local clock signal can help maintain system synchronization and reduce jitter which allows optimal processing of a received data signal.

Allowable Subject Matter

7. Claims 3-5 are objected to as being dependent upon a rejected base claim, but would be allowable if above objections are overcome and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rowell (U.S. Patent No. 6, 606, 361) discloses providing a single clock output from an input data stream and multiple clock signals.

Opreacu (U.S. Patent No. 6, 359, 479) discloses synchronizing data between two distinct clock domains.

Ransijn (U.S. Patent No. 6, 392, 457) discloses recovering a clock signal using four latches.


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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 709-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Curtis Odom
November 18, 2003


STEPHEN CHIN
SUPERVISORY PATENT EXAMINEE
TECHNOLOGY CENTER 2800